Sexual Abuse: A Journal of Research and Treatment

The Recidivism Rates of Female Sexual Offenders Are Low: A Meta-Analysis

The online version of this article can be found at:

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Association for the Treatment of Sexual Abusers

The Recidivism Rates of Female Sexual Offenders Are Low: A Meta-Analysis

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Abstract

This study examined the recidivism rates of female sexual offenders. A meta-analysis of 10 studies (2,490 offenders; average follow-up 6.5 years) showed that female sexual offenders have extremely low rates of sexual recidivism (less than 3%). The recidivism rates for violent (including sexual) offences and for any type of crime were predictably higher than the recidivism rates for sexual offences but still lower than the recidivism rates of male sexual offenders. These findings indicate the need for distinct policies and procedures for assessing and managing the risk of male and female sexual offenders. Risk assessment tools developed specifically for male sexual offenders would be expected to substantially overestimate the recidivism risk of female sexual offenders.

Keywords

female sexual offenders, recidivism, meta-analysis

Although tremendous advances have been made in the understanding of the recidivism rates of adult male sexual offenders, similar knowledge is still extremely limited for female sexual offenders. Like men, women convicted of sexual offenses are subject to social control policies (e.g., Canadian Dangerous Offender Provisions, U.S. Sexually Violent Predator laws). Without an empirical basis for risk assessment, the

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assessment of these women remains as problematic as the assessment of male sexual offenders was 20 years ago. Reliable estimates of the recidivism base rates of female sexual offenders would be a valuable aid to applied decision makers. Providing these estimates is the primary goal of this study.

Prevalence of Sexual Offending by Women

The prevalence rate of female sexual offending is difficult to ascertain. Some authors believe that sexual offending by females is relatively common but that its extent is unknown because of the lack of reporting or because these women tend to be diverted from the criminal justice system (Vandiver & Walker, 2002). Others suggest that sexual offending by women is likely to be underidentified because of societal and cultural stereotypes of female sexual behavior, including professional biases (Denov, 2003, 2004; Giguere & Bumby, 2007).

In efforts to provide more systematic information about the prevalence of female sexual offenders, in comparison with male sexual offenders, Cortoni and Hanson (2005; Cortoni, Hanson, & Coache, 2009) estimated the proportion of sexual offenders who are women from two general sources of information. The first source of information was official police or court reports that detailed the gender of the offender. The second source of information was victimization surveys. For both sources, information was available for Australia, Canada, New Zealand, the United Kingdom, and the United States. Results from the updated 2009 review were consistent with the earlier 2005 findings. Based on official records, the proportion of all sexual offenders who were female ranged from 0.6% in New Zealand to 8.7% for nonrape sexual offenders in the United States. When these numbers were averaged across all countries in the study, women constituted 4.6% of all sexual offenders. Based on victimization studies, the proportion of sexual offenders who were female ranged from 3.1% for New Zealand to 7.0% for Australia, an average of 4.8%.

In summary, available data indicate that women constitute approximately 5% of all sexual offenders. To place this number in a more concrete societal context, it is useful to estimate their proportion in real terms. To establish an overall international figure of the prevalence of child sexual abuse, Pereda, Guilera, Forns, and Gómez-Benito (2009) conducted a meta-analysis of its prevalence in 22 countries. Their results showed that nearly 8% of men and 20% of women had been sexually victimized prior to age 18. If 4% to 5% of all these victims were sexually abused by women, this would mean that 1.4% of all child victims were sexually abused by women. These findings indicate that sexual offending by women is significant enough to warrant systematic attention.

It is important to note, however, that despite the increased recent attention paid to sexual offending by women, we cannot say that sexual offending by women is actually a growing phenomenon. For example, in Canada, between 1994 and 2003, the yearly rate of women accused of sexual assault has consistently been between 1% and 2% of all accused of sexual offences (Statistics Canada, 2007). Instead, sexual offending by women appears to have been a long underrecognized issue, which is finally coming to

the forefront in the field. The increased attention to female sexual offenders motivates the need for empirical evidence to inform the assessment, treatment, and management of these women.

The Importance of Base Rates

The evaluation of risk of recidivism requires knowledge of static and dynamic risk factors that have been empirically linked to sexual offending. Much is known about risk factors among male sexual offenders (e.g., Hanson & Morton-Bourgon, 2005), but very little is known about the factors linked to sexual offending among women (Hedderman, 2004; Kemshall, 2004). To establish this knowledge, systematic information about the recidivism rates of the population is required.

Base rates are the proportion of the population that exhibits the phenomenon of interest. Understanding the base rates of recidivism is fundamental to the evaluation of risk of future offending (Hanson & Bussière, 1998; Quinsey, Lalumière, Rice, & Harris, 1995). Recidivism rates vary according to factors such as jurisdictions, types of crimes being measured, length of time of follow-up, and how they were measured. Among male sexual offenders, research has shown that recidivism rates, with a follow-up period of 5 years, are 13.5% for new sexual offenses, 25.5% for violent (including sexual) offenses, and 36% for any type of recidivism (Hanson & Morton-Bourgon, 2004).

After years of neglect, research into the recidivism rates of female sexual offenders has started to receive attention. Cortoni and Hanson's (2005) review found that the recidivism rates of female sexual offenders are generally low. The number of female offenders included in that review, however, was small (total of 380); a number of large sample studies have appeared since that review was complete. Also, Cortoni and Hanson (2005) did not provide a meta-analytic summary of recidivism rates, such that it was impossible to know whether the variability across studies was significant. Consequently, the current study provides an updated, meta-analytic review of the empirical literature concerning the recidivism rates of female sexual offenders.

Method

Selection of Studies

Studies included conference presentations, government reports, official recidivism data drawn from websites or through direct communication with government agencies, and reports of unpublished studies obtained directly from the researchers. Recidivism studies were included if they identified the gender of the offenders and provided a follow-up period. As necessary, clarifications of the data were obtained by directly contacting the authors of the studies included in this review. For example, to ensure accurate coding of recidivism rates of the Sandler and Freeman (2009) and the Vandiver (2007) studies, we verified whether reported violent reoffense rates included sexual

offenses or not. There were times, however, that such verifications were impossible. In these circumstances, only clearly identifiable recidivism rates were included in the study. As a result, not all types of recidivism were present in every study.

For this review, recidivism was defined as being arrested, charged, convicted, or incarcerated for a new offense. Sexual recidivism included a new charge, conviction, or reincarceration for a sexual offence. Violent recidivism was defined as a new violent charge, conviction, or incarceration for a new violent offense (including sexual offences). Any recidivism was defined as any new charge, conviction, or incarceration. Consequently, the categories of recidivism are cumulative rather than mutually exclusive.

The search yielded two published studies (Broadhurst & Loh, 2003; Sandler & Freeman, 2009), two government reports (Hanson, Harris, Scott, & Helmus, 2007; Minnesota Department of Corrections, 2007), four conference presentations (Peterson, Colebank, & Motta, 2001; Vandiver, 2007; Wijkman, Zoutewelle-Terovan, & Bijleveld, 2009; Williams & Nicholaichuk, 2001), and two official sources of recidivism data (Holley & Ensley, 2003, Florida State, United States; Home Office, 1998-2003, United Kingdom). Table 1 provides a summary of these studies; additional comments about these studies are provided below.

Broadhurst and Loh (2003) examined the probability of rearrest for sexual offenders in the state of Western Australia between 1984 and 1994. Recidivism for the female sexual offenders was reported in Footnote 1 (p. 134).

Hanson et al.'s (2007; Harris & Hanson, 2003) *Dynamic Supervision Project* was a prospective study designed to test the validity of a system of risk assessment for sexual offenders on community supervision (probation or parole). Assessments were conducted between 2001 and 2004, with recidivism information provided on an ongoing basis by the officers supervising the cases (up to March 2007). The full study examined 997 sexual offenders from Canada and two U.S. states, of which 6 were female (1 from New Brunswick, 2 from Iowa, and 3 from Newfoundland).

In 2003, Holley and Ensley produced a government recidivism report on inmates released from Florida prisons between 1995 and 2001.

Home Office Reports to the U.K. Parliament: The Home Office provides information on the reconviction rates of offenders released from prisons in England and Wales. The data used in this review cover the period from 1994 to 1999.

The Minnesota Department of Corrections published a report in 2007 on the recidivism rates of sexual offenders released from a Minnesota Correctional Facility between 1990 and 2002.

The women in Peterson et al. (2001) had been or continued to be in treatment for their sexually offending behavior. Recidivism was coded from official Kentucky Court records.

Sandler and Freeman (2009) examined the recidivism patterns and risk factors of registered sexual offenders in the State of New York. The study included by far the largest sample ever reported in a recidivism study of female sexual offenders ($N = 1,466$). Recidivism was coded from computerized criminal history files in New York State between January 1, 1986, and December 31, 2006.

Table 1. Summary of Recidivism Studies

Source	N	Country	Recidivism Type	Mean Follow-Up (Years)	Recidivism Rates		
					Sexual, % (N)	Violent, % (N)	Any, % (N)
Broadhurst and Loh (2003)	43	Western Australia	Arrest	5.7	0	9.3 (4)	—
Hanson et al. (2007)	6	Canada and Iowa	Arrest	3.3	0.0	16.6 (1)	16.6 (1)
Holley and Ensley (2003)	74	United States—Florida	Conviction	5	—	—	12.2 (9)
Home Office Statistics (1998–2003)	81	United Kingdom	Conviction	2	1.2 (1)	1.2 (1)	11.1 (9)
Minnesota Department of Corrections (2007)	41	United States—Minnesota	Arrest	8.4	4.8 (2)	—	—
Peterson et al. (2001)	115	United States—Kentucky	Conviction	5.5	0	—	26.1 (30)
Sandler and Freeman (2009)	1,466	United States—New York State	Arrest	5	1.8 (19)	5.2% (54)	26.6 (277)
Vandiver (2007)	471	United States—Texas	Arrest	12	10.8 (51)	14.8 (70)	45.0 (212)
Wijkman et al. (2009)	132	Netherlands	Conviction	10.3	1.5 (2)	6.8 (9)	24.2 (32)
Williams and Nicholaichuk (2001)	61	Canada	Charges	7.6	2.3 (2)	11.5 (7)	32.8 (20)

Note: "—", no information available.

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Vandiver (2007) conducted a follow-up of the 2001 cohort of registered sexual offenders in Texas. Recidivism was coded from criminal records and included any registerable sexual offense in the State of Texas. These offenses include compelling prostitution, offenses related to possession or distribution of child pornography, kidnapping, and board/court ordered registration (Donna Vandiver, personal communication, October 14, 2008).

Wijkman et al. (2009) conducted a latent class analysis to investigate specialization versus generalization in the patterns of criminal behavior of 132 female sexual offenders. Data were coded from complete official criminal convictions records of the women from 12 years to August 2008 (Catrien Bijleveld, personal communication, February 3, 2009).

Williams and Nicholaichuk (2001) conducted a follow-up of 72 female sexual offenders who received federal sentences (2 years or more) in Canada between 1972 and 1998. Because of deportation or continued incarceration, recidivism data could be obtained only for 61 of the cases. Recidivism was coded from Royal Canadian Mounted Police records, a national database that contains all charges and convictions on every offender in Canada.

Aggregation of Findings

The basic effect size indicator was p, the proportion of recidivists (i.e., the number of recidivists divided by n, the sample size). Although raw proportions are easily interpreted, they have certain limitations as effect size indicators for meta-analysis. Using the standard formula, the variance of p is estimated as $p(1 - p)/n$ (Fleiss, Levin, & Paik, 2003). This variance is small in two quite different circumstances: (a) when the same size is very large and (b) when sample size is so small that there are no recidivists. This formula also assumes that the variance decreases as the proportions approach zero, which has the effect of giving the most weight to studies with the smallest recidivism rates.

Given the problems with analyzing raw proportions from different studies, variance stabilization transformations are recommended (Cohen, 1988; Eisenhart, 1947; Fleiss et al., 2003). The most common variance stabilization transformation for proportions is the arcsine transformation, which we will denote by $\breve{A}$, defined as $\breve{A} = 2 \arcsin\sqrt{P}$, with a variance of $1/n$. In other words, the variance of $\breve{A}$ depends only on the sample size and not on the size of the proportion. Consequently, analyses were conducted using both the raw proportions and the transformed proportions. All results were reported as proportions, however, because $\breve{A}$ in its original units (radians) is not easily interpreted.

To analyze studies in which there were no recidivists for certain categories (Broadhurst & Loh, 2003; Hanson et al., 2007; Peterson et al., 2001), the recidivism rate (p) was estimated as $1/4n$ (i.e., Bartlett's adjustment, see Eisenhart, 1947; Cohen, 1988).

The magnitude and consistency of recidivism rates across studies were calculated using both fixed-effect and random-effects models (Hedges & Vevea, 1998). Each approach asks slightly different questions and neither approach has won universal

acceptance (Whitehead, 2002). On a conceptual level, the conclusions of the fixed-effect analyses are restricted to the particular set of studies included in the meta-analysis. In contrast, the random-effects model aims for conclusions that apply to the population of studies of which the current sample of studies is a part. In practical terms, the random-effects model includes an additional between-study error term representing the unexplained variation across studies (a constant). Compared with the fixed-effect model, the random-effects model has higher variance estimates (wider confidence intervals), and the differences in sample size across the studies is given less importance. Consequently, the random-effects model gives relatively more weight to small studies than does the fixed-effect model (approximating unweighted averages).

When the assumptions are violated, the fixed-effect model is too liberal and the random-effects model is too conservative (Overton, 1998). The results of the random-effects and fixed-effect models converge as the amount of between-study variability decreases. When the variation between studies is less than would be expected by chance ($Q <$ degrees of freedom, using Cochran's Q statistic; Hedges & Olkin, 1985), both approaches yield identical results. To test the generalizability of fixed effects across studies, the Q statistic was used:

$$Q = \sum_{i=1}^{k} w_i \, (p_i - P.)^2,$$

where p_i is the observed proportion in each of k studies and $p.$ is the weighted average. The Q statistic is distributed as a χ^2 with $k - 1$ degrees of freedom (k is the number of studies).

A significant Q statistic indicates that there is more variability across studies than would be expected by chance. In such cases, further examinations of the data were conducted to establish whether an outlier could be identified. An individual finding was considered to be an outlier if (a) it was an extreme value (highest or lowest), (b) the Q statistic was significant, and (c) the single finding accounted for more than 50% of the value of the Q statistic. When an outlier was detected, the results are reported with and without the exceptional case.

Fixed-effect estimates of recidivism rates were calculated using the formula and procedures presented in Hedges (1994). Random-effects estimates were calculated using Formulae 10, 12, and 14 from Hedges and Vevea (1998). Hand calculations or SPSS syntax was used for all analyses. Both fixed-effect and random-effects models were estimated for both the raw proportions (p) and the transformed proportions ($Ă$).

Results

A total of 2,490 offenders with an average follow-up time of 6.5 years were included in this review. Sexual, violent, and any recidivism were examined separately in the analyses. Table 2 presents the weighted averages of recidivism rates across studies. Table 3 and Figure 1 show the results of the meta-analysis of both raw and transformed proportions.

Table 2. Weighted Average Recidivism Rates of Female Sexual Offenders

	Type of Recidivism			Average Follow-Up (Years)
	Sexual	Violent	Any	
All studies	3.19% (77/2,416)	6.46% (146/2,260)	24.52% (590/2,406)	6.5
Without Vandiver (2007)	1.34% (26/1,945)	4.25% (76/1,789)	19.54% (378/1,935)	5.9
Male sexual offenders[a]	13.7%	25.0%	36.9%	5.5

Note: N = 20,000; Hanson and Morton-Bourgon (2004).

Table 3. Random and Fixed Effects Estimates of Recidivism

		Random		Fixed				
		%	95% C.I.	%	95% C.I.	Q	N	k
Sexual	P	2.43	0.82, 4.03	1.24	0.81, 1.68	52.86**	2,416	9
	W/o Van	1.00	0.56, 1.45	1.00	0.56, 1.45	6.92	1,945	8
	$\breve{A}$	2.33	0.47, 5.55	2.43	1.86, 3.09	80.34**	2,416	9
	W/o Van	1.28	0.83, 1.83	1.28	0.83, 1.83	5.63	1,945	8
Violence	P	7.57	3.40, 11.75	4.41	3.57, 5.25	55.62**	2,260	6
	W/o Van	4.64	2.13, 7.15	3.65	2.78, 4.52	12.00*	1,789	5
	$\breve{A}$	7.43	3.17, 13.29	5.81	4.89, 6.82	68.50**	2,260	6
	W/o Van	5.54	2.87, 9.01	4.08	3.21, 5.05	13.33*	1,789	5
Any	P	23.82	14.47, 33.17	22.35	20.73, 23.97	130.93**	2,406	8
	W/o Van	19.79	15.00, 24.59	18.96	17.22, 20.70	18.61*	1,935	7
	$\breve{A}$	23.30	14.40, 33.59	23.89	22.21, 25.61	136.38**	2,406	8
	W/o Van	20.17	15.50, 25.28	19.40	17.66, 21.19	18.12*	1,935	7

Note: P = raw proportions; w/o Van = without Vandiver (2007); $\breve{A}$ = arcsine transformed proportions; CI = confidence interval; k = number of studies.
*p < .05. **p < .01.

Sexual Recidivism Estimates

For sexual recidivism, the observed recidivism rates ranged from 0% to 10.8%, with a median value of 1.5%. In the nine studies reporting sexual recidivism rates involving 2,416 female sexual offenders, there were 77 sexual recidivists (3.19%). Fixed-effect analyses of the raw proportions and the transformed proportions produced estimates of 1.24% and 2.43%, respectively. Random-effects analyses produced estimates of 2.43% and 2.33%. The analyses showed a greater variability of recidivism among studies than would be expected by chance, and Vandiver (2007) was identified as an outlier. Once Vandiver was removed, the variability between studies was no more than would be expected by chance ($Q < df$; see Table 3). Without Vandiver,
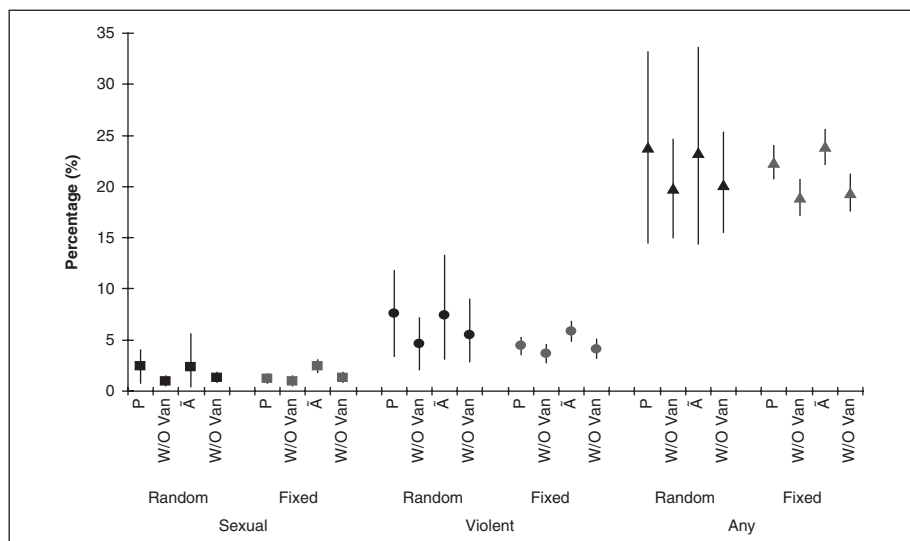
Figure 1. Percentages and confidence intervals of aggregated estimates of recidivism: Random and fixed effects

fixed-effect and random-effects estimates were the same: 1.00% for the raw proportions and 1.28% for the transformed proportions.

Violent Recidivism Estimates

For violent recidivism, of the seven studies involving 2,260 female sexual offenders, there were 146 violent recidivists (6.46%). The observed violent recidivism rates ranged from 1.2% to 16.6%, with a median value of 9.3%. Fixed-effect analyses of the raw proportions and the transformed proportions produced estimates of 4.41% and 5.81%, respectively. Random-effects analyses produced estimates of 7.57% and 7.43%. There was greater variability in the violent recidivism rates across studies than would be expected by chance, and Vandiver (2007) was again identified as the outlier. When the fixed-effect analyses were repeated without the Vandiver study, variability among studies dropped considerably but remained significant ($Q = 12.00$ and 13.33, respectively, $df = 4$, $p < .05$; see Table 3). Without Vandiver, the fixed-effect analyses of the raw proportions and the transformed proportions were 3.65% and 4.08%, respectively. Random-effects estimates were 4.64% and 5.54%, respectively.

Any Recidivism Estimates

For any recidivism, of the eight studies involving 2,406 female sexual offenders, there were 590 recidivists (24.42%). The observed rate for recidivism ranged from 11.1% to

45.0%, with a median value of 23.5%. Fixed-effect analyses of the raw proportions and the transformed proportions produced estimates of 22.35% and 23.89%, respectively. Random-effects analyses produced estimates of 23.82% and 23.30%. There was greater variability across studies than would be expected by chance, with Vandiver (2007) being the sole outlier. When the fixed effects analysis was repeated without the Vandiver study, variability among studies dropped considerably but remained significant, $Q = 18.61$ (raw proportions)] and 18.12 (transformed proportions), $df = 6, p < .01$; see Table 3. Without Vandiver, the fixed-effect analyses of the raw proportions and the transformed proportions were 18.96% and 19.40%, respectively. Random-effects estimates were 19.79% and 20.17%, respectively.

Discussion

This meta-analytic review found that the recidivism rates of female sexual offenders were much lower for all types of crime than the comparable rates for male sexual offenders. Specifically, the women had extremely low rates of sexual recidivism (between 1% and 3%), regardless of the studies included or the method of analysis. Violent (including sexual) recidivism rates were higher but still low: Depending on whether fixed or random effects were examined, violent recidivism rates ranged from 4% to 8%. In contrast, rates for any type of recidivism were higher, ranging from 19% to 24%. These results provide clear evidence that female sexual offenders, once they have been detected and sanctioned by the criminal justice system, tend not to reengage in sexually offending behavior. Most female sexual offenders are not convicted of any new crimes, and of those who are, they are 10 times more likely to be reconvicted for a nonsexual crime than a sexual crime ($\approx$20% vs. $\approx$2%).

The low recidivism rates of the female sexual offenders are consistent with previous findings showing that, compared with men, women are less likely to be involved with any type of crime (Barker, 2009; Blanchette & Brown, 2006; Kong & AuCoin, 2008; Langan & Levin, 2002). Depending on the jurisdictions, women constitute approximately 17% to 23% of all adult offenders, although they constitute only about 10% of all violent offenders and 5% of all sexual offenders (Blanchette & Brown, 2006; Cortoni et al., 2009). Similarly, women also have lower recidivism rates than males. For offenders released from the Correctional Service of Canada during the 1990s, the 2-year reconviction rate for male offenders ranged between 41% and 44%, compared with rates of 23% to 30% for the female offenders (Bonta, Rugge, & Dauvergne, 2003). The rate of violent recidivism for the women was half that observed for the men in the Correctional Service of Canada samples (6.7% vs. 13.2%). In the United States, 39.9% of the women had been reconvicted for a new offense versus 47.6% of the men in a 3-year follow-up of 272,111 offenders, including 23,674 women (Langan & Levin, 2002).

Women's involvement in crime is generally low. The reasons for this are unclear— but the fact is well established (e.g., Blanchette & Brown, 2006), and it is particularly true of female sexual offenders (Giguere & Bumby, 2007). Despite low numbers,

women are increasingly coming to the attention of the criminal justice system for sexual offenses, thereby increasing the need for appropriate assessment practices. The accumulating evidence suggests that females have particular vulnerabilities that are linked to their sexually offending behavior. Specifically, social and psychological alienation, along with extensive histories of victimization, are particularly common among female sexual offenders (Comack & Brickey, 2007; Gannon, Rose, & Ward, 2008; Johansson-Love & Fremouw, 2006; Pollock, Mullings, & Crouch, 2002; Sommers & Baskin, 1993; Wijkman & Bijleveld, 2008). For these women, it is likely that their offending is related to early experiences of severe physical and sexual abuse in combination with biological (e.g., genetic factors; Quinsey, Skilling, Lalumière, & Craig, 2004) and social learning variables (e.g., socialization; Campbell, Muncer, & Bibel, 2001). The precise etiological mechanisms mediating the relationship between victimization and subsequent offending are unknown, as of yet.

In the overall collection of studies included in this meta-analysis, there was greater variability than would be expected by chance. Much of this variability could be explained by the high recidivism rates observed by Vandiver (2007). Vandiver's (2007) study was the only one in which the sexual recidivism rates were virtually identical for the male and female sexual offenders (11.4% vs. 10.8%, respectively). Vandiver (2007) counted as sexual recidivism any offense that led to the registration of the woman as a sexual offender, as defined by the State of Texas. This definition not only included the sexual offences typical of males, such as child molestation, but also included other types of offences, such as compelling prostitution, kidnapping, and Court or Board ordered registration (D. Vandiver, personal communication, October 14, 2008). The inclusion of prostitution-related offenses likely inflated the rate of sexual recidivism among the female sexual offenders as this type of offences was only present for the women in the study. Consistent definitions facilitate cumulative knowledge. In the male sexual offender literature, there have been sustained efforts to adopt consistent definitions of what constitutes a sexual crime (e.g., Hanson & Morton-Bourgon, 2004; Harris, Phenix, Hanson, & Thornton, 2003; Quinsey et al., 1995). In the current study, both the Vandiver (2007) and the Sandler and Freeman (2009) data sets included females who were actually only convicted of prostitution-related offenses. In contrast, males with only prostitution-related offenses are typically not viewed as sexual offenders. Future research on female sexual offenders would do well to consider standardizing the definitions of sexual offending by women. In particular, researchers should separate prostitution-related offences committed by females from sexual offences involving sexual acts directed toward victims unable or unwilling to consent (i.e., the sexual offences typical of contemporary samples of male sexual offenders).

This study demonstrated the value of meta-analysis in summarizing the recidivism rates across studies. Although it is possible to create averages by simply dividing the aggregated total of recidivists by the aggregated total sample size, meta-analysis provides estimates of the stability of the results. Evaluators and policy makers can have the most confidence in results that are consistent across studies. When there is

meaningful variation across studies, meta-analysis can identify statistical outliers and moderator variables. Furthermore, meta-analysis will have an essential role in the identification of recidivism risk factors for female sexual offenders. Given the low recidivism rates, very large samples are needed to identify factors that distinguish the recidivists from the nonrecidivists, samples that can most easily be obtained by accumulating female sexual offenders from different settings.

Implications for Applied Risk Assessment

The low base rates of sexual recidivism among female sexual offenders means that risk assessment tools for male sexual offenders will overestimate the recidivism risk of female sexual offenders. Consequently, they should not be used in applied decision making. Given that general (i.e., nonsexual) recidivism is much more common among female sexual offenders than sexual recidivism, evaluators should consider the use of tools validated to assess risk of general and violent (nonsexual) recidivism among these women (e.g., Level of Service Inventory–Revised; Andrews & Bonta, 1995). Even the use of general risk assessment tools, however, requires an understanding of the general research on risk factors and recidivism among female offenders (e.g., Blanchette & Brown, 2006; Folsom & Atkinson, 2007; Holtfreter & Cupp, 2007; Manchak, Skeem, Douglas, & Siranosian, 2009).

   If the evaluation question specifically concerns the risk for sexual recidivism (e.g., Sexual Violent Predator laws in the United States), then the risk factors must be so blatant that they overcome the presumption of low risk for sexual recidivism implied by the observed base rates. The risk factors for sexual recidivism among females are unknown but could plausibly include the same three general factors generally identified for males (i.e., sexual deviancy, antisociality, intimacy deficits). Research to date, however, indicates that the ways in which these factors manifest themselves in female sexual offenders are different from the typical patterns found in male sexual offenders (see Cortoni, in press, for a review). In addition, the extent to which these factors actually play a role in sexual recidivism among women remains an open question.

Authors' Note

Acknowledgment

Declaration of Conflicting Interests

Funding

References

References marked with an asterisk were included in the meta-analysis.

Andrews, D. A., & Bonta, J. (2006). *The psychology of criminal conduct* (4th ed.). Newark, NJ: LexisNexis.

Barker, J. (2009). A "typical" female offender. In J. Barker (Ed.), *Women and the criminal justice system: A Canadian perspective* (pp. 63-87). Toronto, Ontario, Canada: Emond Montgomery.

Blanchette, K., & Brown, S. L. (2006). *The assessment and treatment of women offenders: An integrated perspective*. Chichester, England: John Wiley.

Bonta, J., Rugge, T., & Dauvergne, M. (2003). *The reconviction rate of federal offenders* (User Report No. 2003-03). Ottawa, Ontario, Canada: Public Safety Canada. Retrieved from http://www.publicsafety.gc.ca/res/cor/rep/_fl/2003-02-rec-rte-eng.pdf

*Broadhurst, R., & Loh, N. (2003). The probabilities of sex offender re-arrest. *Criminal Behaviour and Mental Health, 13*, 121-139.

Campbell, A., Muncer, S., & Bibel, D. (2001). Women and crime: An evolutionary approach. *Aggression and Violent Behavior, 6*, 481-497.

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Comack, E., & Brickey, S. (2007). Constituting the violence of criminalized women. *Canadian Journal of Criminology and Criminal Justice, 49*, 1-36.

Cortoni, F. (in press). The assessment of female sexual offenders. In T. A. Gannon & F. Cortoni (Eds.), *Female sexual offenders: Theory, assessment, and treatment*. Chichester, England: Wiley-Blackwell.

Cortoni, F., & Hanson, R. K. (2005). *A review of the recidivism rates of adult female sexual offenders* (Research Rep. No. R-169). Ottawa, Ontario, Canada: Correctional Service Canada. Retrieved from www.csc-scc.gc.ca/text/rsrch/reports/r169/r169_e.pdf

Cortoni, F., Hanson, R. K., & Coache, M. E. (2009). Les délinquantes sexuelles: Prévalence et récidive [Female sexual offenders: Prevalence and recidivism]. *Revue internationale de criminologie et de police technique et scientifique, LXII*, 319-336.

Denov, M. S. (2003). The myth of innocence: sexual scripts and the recognition of child sexual abuse by female perpetrators. *Journal of Sex Research, 40*, 303-314.

Denov, M. S. (2004). *Perspectives on female sex offending*. Hampshire, England: Ashgate.

Eisenhart, C. (1947). Inverse sine transformation of proportions. In C. Eisenhart, M. W. Hastay, & W. A. Wallis (Eds.), *Selected techniques of statistical analysis for scientific and industrial research and production and management engineering* (pp. 395-416). New York, NY: McGraw-Hill.

Fleiss, J. L., Levin, B., & Paik, M. C. (2003). *Statistical methods for rates and proportions* (3rd ed.). Hoboken, NJ: Wiley.

Folsom, J., & Atkinson, J. L. (2007). The generalizability of the LSI-R and the CAT to the prediction of recidivism in female offenders**. *Criminal Justice and Behavior*, *34*, 1044-1056.

Gannon, T. A., Rose, M. R., & Ward, T. (2008). A descriptive model of the offense process for female sexual offenders. *Sexual Abuse: A Journal of Research and Treatment, 20*, 352-374.

Giguere, R., & Bumby, K. (2007). *Female sex offenders*. Silver Spring, Maryland: Center for Effective Public Policy, Center for Sex Offender Management. Retrieved from http://www.csom.org/pubs/female%5Fsex%5Foffenders%5Fbrief.pdf

Hanson, R. K., & Bussière, M. T. (1998). Predicting relapse: A meta-analysis of sexual offender recidivism. *Journal of Consulting and Clinical Psychology, 66*, 348-362.

*Hanson, R. K., Harris, A. J. R., Scott, T. L., & Helmus, L. (2007). *Assessing the risk of sexual offenders on community supervision: The Dynamic Supervision Project* (User Rep. No. 2007-05). Ottawa, Ontario, Canada: Public Safety Canada. Retrieved from www.public-safety.gc.ca/res/cor/rep/_fl/crp2007-05-en.pdf

Hanson, R. K., & Morton-Bourgon, K. E. (2004). *Predictors of sexual recidivism: An updated meta-analysis* (User Rep. No. 2004-02). Retrieved from www.publicsafety.gc.ca/res/cor/rep/2004-02-pred-se-eng.aspx

Hanson, R. K., & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: A meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology, 73*, 1154-1163.

Harris, A. J. R., & Hanson, R. K. (2003). The Dynamic Supervision Project: Improving the community supervision of sex offenders. *Corrections Today, 65,* 60-62.

Harris, A. J. R., Phenix, A., Hanson, R. K., & Thornton, D. (2003). *STATIC-99 coding rules revised–2003* (User Rep. No. 2003-03). Retrieved from www.publicsafety.gc.ca/res/cor/rep/_fl/2003-03-stc-cde-eng.pdf

Hedderman, C. (2004). The "criminogenic" needs of women offenders. In G. McIvor (Ed.), *Women who offend* (pp. 227-244). London, England: Jessica Kingsley.

Hedges, L. V. (1994). Fixed effect models. In H. Cooper & L. V. Hedges (Eds.), *The handbook of research synthesis* (pp. 285-299). New York, NY: Russell Sage.

Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis.* New York, NY: Academic Press.

Hedges, L. V., & Vevea, J. L. (1998). Fixed- and random-effects models in meta-analysis. *Psychological Methods, 3*, 486-504.

*Holley, G., & Ensley, D. (2003). *Recidivism report: Inmates released from Florida prisons July 1995 to June 2001*. Tallahassee: Florida Department of Corrections.

Holtfreter, K., & Cupp, R. (2007). Gender and risk assessment: The empirical status of the LSI-R for women. *Journal of Contemporary Criminal Justice*, *23*, 363-382.

*Home Office. (1998-2003). *Prison statistics England and Wales* (*yearly reports: 1997 to 2002*). London, England: Her Majesty's Stationary Office.

Johansson-Love, J., & Fremouw, W. (2006). A critique of the female sexual perpetrator research. *Aggression and Violent Behavior, 11*, 12-26.

Kemshall, H. (2004). Risk, dangerousness and female offenders. In G. McIvor (Ed.), *Women who offend* (pp. 209-226). London, England: Jessica Kingsley.

Kong, R., & AuCoin, K. (2008). *Female offenders in Canada* (No. 85-002-XIE). Ottawa, Ontario, Canada: Canadian Centre for Justice Statistics.

Langan, P. A., & Levin, D. J. (2002). *Recidivism of prisoners released in 1994* (Special report). Washington, DC: Bureau of Justice Statistics, US Department of Justice. Retrieved from www.ojp.usdoj.gov/bjs/pub/pdf/rpr94.pdf

Manchak, M. A., Skeem, J. L., Douglas, K. S., & Siranosian, M. (2009). Does gender moderate the predictive utility of the Level of Service Inventory–Revised (LSI-R) for serious violent offenders? *Criminal Justice and Behavior, 36*, 425-442.

*Minnesota Department of Corrections. (2007). *Sex offender recidivism in Minnesota*. Saint-Paul, MN: Author. Retrieved from www.doc.state.mn.us/publications/publications.htm#so

Overton, R. C. (1998). A comparison of fixed-effects and mixed (random-effects) models for meta-analysis tests of moderator variable effects. *Psychological Methods, 3*, 354-379.

Pereda, N., Guilera, G., Forns, M., & Gómez-Benito, J. (2009). The prevalence of child sexual abuse in community and student samples: A meta-analysis. *Clinical Psychology Review, 4*, 328-338.

*Peterson, K. D., Colebank, K. D., & Motta, L. L. (2001, November). *Female sexual offender recidivism*. Paper presented at the 20th Annual Research and Treatment Conference of the Association for the Treatment of Sexual Abusers, San Antonio, TX.

Pollock, J. M., Mullings, J., & Crouch, B. (2002). Drugs and criminality: Results from the Texas women inmates study. *Women and Criminal Justice, 13*, 69-97.

Quinsey, V. L., Lalumière, M. L., Rice, M. E., & Harris, G. T. (1995). Predicting sexual offenses. In J. C. Campbell (Ed.), *Assessing dangerousness: Violence by sexual offenders, batterers, and child abusers* (pp. 114-137). Thousand Oaks, CA: Sage.

Quinsey, V. L., Skilling, T. A., Lalumière, M. L., & Craig, W. M. (2004). *Juvenile delinquency: Understanding the origins of individual differences.* Washington, DC: American Psychological Association.

*Sandler, J. C., & Freeman, N. J. (2009). Female sex offender recidivism: A large-scale empirical analysis. *Sexual Abuse: A Journal of Research and Treatment, 21*, 455-473.

Sommers, I., & Baskin, D. R. (1993). The situational context of violent female offending. *Journal of Research in Crime and Delinquency, 30*, 136-162.

Statistics Canada. (2007). *Adult criminal court survey, number of cases by sex of accused, annual* (CANSIM Table 252-0023). Retrieved from http://cansim2.statcan.gc.ca/

*Vandiver, D. (2007, March). *An examination of re-arrest rates of 942 male and 471 female registered sex offenders*. Paper presented at the Academy of the Criminal Justice Sciences, Feature Panel on Sex Offenders, Seattle, WA.

Vandiver, D. M., & Walker, J. T. (2002). Female sex offenders: An overview and analysis of 40 cases. *Criminal Justice Review, 27*, 284-300.

Wijkman, M., & Bijleveld, C. (2008, September). *Female sex offenders: Recidivism and criminal careers.* Paper presented at the 8th Annual Conference of the European Society of Criminology, Edinburgh, Scotland.

*Wijkman, M., Zoutewelle-Terovan, M., & Bijleveld, C. (2009, June). *Vrouwelijke zedendelinquenten* [*Female sexual offenders*]. Paper presented at the Annual Meeting of the Netherlands Society of Criminology, Leiden, Netherlands.

*Williams, S. M., & Nicholaichuk, R. (2001, November). *Assessing static risk factors in adult female sex offenders under federal jurisdiction in Canada*. Paper presented at the 20th Annual Research and Treatment Conference of the Association for the Treatment of Sexual Abusers, San Antonio, TX.

Whitehead, A. (2002). *Meta-analysis of controlled clinical trials*. Chichester, England: John Wiley.